

REMARKS

Status Of Application

Claims 1-8 are pending in the application; the status of the claims is as follows:

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,404,960 to Wada et al (“Wada”).

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wada.

Claims 3-8 are allowed.

The acknowledgement, in the Office Action, of a claim for foreign priority under 35 U.S.C. § 119(a)-(d), and that the certified copy of the priority document has been received, is noted with appreciation.

The indication, in the Office Action, that the Examiner has no objections to the drawings filed on June 14, 2006, is noted with appreciation.

Claim Amendments

Claims 1-3 and 6 have been amended to correct minor antecedent basis errors and to improve the grammar thereof. These changes are not necessitated by the prior art, are unrelated to the patentability of the invention over the prior art, and do not introduce any new matter.

35 U.S.C. § 102(b) Rejection

The rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Wada, is respectfully traversed based on the following.

The invention of claim 1 is directed to an electric power steering device for controlling the output of a motor that applies an auxiliary steering force to a steering mechanism.

Claim 1 recites, *inter alia*:

a motor drive circuit including a motor connected across the output terminals and a power supply connected across the input terminals of an H bridge circuit made up of a first arm and a second arm each containing a pair of semiconductor devices connected in series, a PWM signal for a duty ratio D1 driving said semiconductor device in the upper stage of said first arm, and a PWM signal for a duty ratio D2 driving said semiconductor device in the lower stage of said second arm of said H bridge circuit,

wherein said duty ratio calculator calculates said duty ratio D1 and said duty ratio D2 having a continuous characteristics between the motor current and a duty ratio D from said current reference value based on a specified calculation formula.

(Emphasis added)

Thus, claim 1 requires a PWM signal having a duty ratio D1 for driving the semiconductor device in the upper stage of the first arm of the H bridge circuit and a PWM signal having a duty ratio D2 for driving the semiconductor device in the lower stage of the second arm of the H bridge circuit.

Wada discloses first and second PWM duty ratios for controlling switching elements that are connected together in the form of a bridge circuit. In a first mode, Wada turns on one switching element (Q4) of a pair of switching elements (Q1, Q4) and drives the other switching element (Q1) of the pair with the first PWM duty ratio P1. (Wada, col. 5, ll. 20-24; col. 7, ll. 63-68) In a second mode, Wada drives both the paired switching elements (Q1 and Q4) with the second PWM duty ratio P2. (Wada, col. 5, ll. 24-27; col. 8, ll. 1-4) Wada discloses that the switching elements are driven “on the basis of the first PWM duty ratio P1 or the second PWM duty ratio P2.” (Wada, col. 7, ll. 58-62, emphasis added). Thus, Wada does not disclose “a PWM signal for a duty ratio D1 driving said semiconductor device in the upper stage of said first arm, and a PWM signal for a duty ratio D2 driving said

semiconductor device in the lower stage of said second arm of said H bridge circuit” as recited in claim 1.

Accordingly, it is respectfully requested that the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Wada, be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejection

The rejection of claim 2 under 35 U.S.C. § 103(a), as being unpatentable over Wada, is respectfully traversed based on the following.

Claim 2 depends from claim 1 and thus includes all of the limitations of claim 1. As noted above, claim 1 includes the limitation of “a PWM signal for a duty ratio D1 driving said semiconductor device in the upper stage of said first arm, and a PWM signal for a duty ratio D2 driving said semiconductor device in the lower stage of said second arm of said H bridge circuit.” Also as noted above, Wada does not disclose at least this limitation of claim 1. Therefore, Wada cannot render obvious the invention of claim 2 which depends from claim 1.

Accordingly, it is respectfully requested that the rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Wada, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any new multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due.

Application No. 10/582,931
Amendment dated March 17, 2009
Reply to Office Action of December 18, 2008

However, if a fee, other than the issue fee, is due, please charge this fee to Sidley Austin LLP Deposit Account No. 18-1260.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin LLP Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

By: /Tung T. Nguyen/ Reg. No. 42,935
Tung T. Nguyen
Registration No. 42,935
Attorney for Applicants

TTN/llb:bar
SIDLEY AUSTIN LLP
717 N. Harwood, Suite 3400
Dallas, Texas 75201
Direct: (214) 981-3478
Main: (214) 981-3300
Facsimile: (214) 981-3400
March 17, 2009

DA1 431676v.4